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| 10/671,738 | 09/29/2003 | Masahiro Ishiyama | 03180.0335 | 6750 |

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FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP
901 NEW YORK AVENUE, NW
WASHINGTON, DC 20001-4413

| EXAMINER | |
|---|---|
| ALI, FARHAD | |
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/671,738 | ISHIYAMA ET AL. | |
| | Examiner | Art Unit | |
| | FARHAD ALI | 2146 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *19 December 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1,2,4-8,10-14 and 16-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4-8,10-14 and 16-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 September 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Wu (US 5185860 A).

**Claim 1**

Wu teaches a name resolution device for managing a name of each node connected to a network and an address for identifying each node, comprising:

a node information storing unit configured to store a node information containing a name of a node, a network identification information, a prefix indicating a position on the network, and an interface identification information of a node, for each node **(Column 5 Lines 58-60, "Block 604 then initializes the database used to permanently store the nodes)**;

a node information collecting unit configured to collect the node information of other nodes connected to the network, through the network **(Column 5 Lines 35-41, "Referring now to FIGS. 3 through 5, discovery module 302 is the main module of the system. Discovery calls self-seed block 304 to start the process of building a database about the network, and it calls process-node block 306 to process information about each node that it obtained from self-seed")**;

a node information updating unit configured to update the node information stored in the node information storing unit, according to the node information of the other nodes collected by the node information collecting unit, by updating the prefix stored in the node information storing unit by using the interface identification information contained in the node information collected by the node information collecting unit as a key **(Column 8 Lines 16-19, "After adding the node, or if the node already existed, control goes to block 1112 which updates the state information about the node")**;

a function conversion unit configured to convert the interface identification information corresponding to a prescribed node among the node information stored in the node information storing unit, by using a one way function **(Column 9 Lines 5-7, "Referring now to FIG. 15, after entry, block 1502 performs a hash operation on the IP address to create a pointer into the node list")**;

a comparing unit configured to compare the interface identification information converted by using the one way function which is received from another node, with the interface identification information as converted by the function conversion unit **(Column 6-7 Lines 67-5, "That is, when the process-ping module queries the node, it determines the state of the node at the present time. This state is compared, in block 806, with the state of the node as it was known previously in the database. If that state has changed, block 806 transfers to block 808 to store the new state in the database")**; and

a node information providing unit configured to provide the prefix corresponding to the interface identification information compared by the comparing unit to the another node, only when it is judged that the interface identification information coincides at the comparing unit **(Column 6 Lines 48-52, "query the address translation table for the node that is executing the discovery system. This table will contain the addresses of other nodes on the network, and these addresses are then used to start the discovery process")**.

## Claim 2

Wu teaches the name resolution device of claim 1, wherein the node information updating unit updates the node information stored in the node information storing unit for which the interface identification information coincides with that of the node information collected by the node information collecting unit but title prefix does not coincide with that of the node information collected by the node information collecting unit **(Column 8 Lines 25-32, "each IF table entry will have a corresponding IP table entry, and the IP entry is referenced by an index value contained in the IF entry. Block 1204 then determines whether a matching IP record exists. If a matching IP record does exist, block 1204 transfers to block 1206 which moves the physical address from the IP record to the node record in the node list. Block 1208 then updates any state information in the node record")**.

## Claim 3

*(Cancelled)*

**Claim 4**

Wu teaches the name resolution device of claim 1, wherein the function conversion unit uses a hash function as the one way function **(Column 9 Lines 5-7, "Referring now to FIG. 15, after entry, block 1502 performs a hash operation on the IP address to create a pointer into the node list")**.

**Claim 5**

Wu teaches the name resolution device of claim 1, farther comprising:

a prefix conversion unit configured to convert the prefix into a position identification information which is in one-to-one correspondence to the prefix; wherein the node information storing unit stores the position identification information obtained by the prefix conversion unit, as the prefix **(Column 9 Lines 7-11, "Block 1504 then allocates memory for a node record, and block 1506 stores the data available for the node into the node record at the location pointed to by the hashed IP address")**.

**Claim 6**

Wu teaches the name resolution device of claim 1, further comprising:

an address generation unit configured to generate an IPv6 address dynamically, according to the node information stored in the node information storing unit **(Column 10 Lines 40-43, "FIG. 10 shows a flowchart of the process-IFIP module block 310**

**(FIG. 3). The IF and IP tables are available in a node to define the translation of physical addresses to IP addresses")**.

**Claim 7**

Wu teaches a name resolution method for managing a name of each node connected to a network and an address for identifying each node, comprising:

storing a node information containing a name of a node, a network identification information, a prefix indicating a position on the network, and an interface identification information of a node, for each node **(Column 5 Lines 58-60, "Block 604 then initializes the database used to permanently store the nodes)**;

collecting the node information of other nodes connected to the network, through the network **(Column 5 Lines 35-41, "Referring now to FIGS. 3 through 5, discovery module 302 is the main module of the system. Discovery calls self-seed block 304 to start the process of building a database about the network, and it calls process-node block 306 to process information about each node that it obtained from self-seed")**;

updating the node information stored by the storing, according to the node information of the other nodes collected by the collecting, by updating the prefix stored by the storing by using the interface identification information contained in the node information collected by the collecting as a key **(Column 8 Lines 16-19, "After adding the node, or if the node already existed, control goes to block 1112 which updates the state information about the node")**;

converting the interface identification information corresponding to a prescribed node among the node information stored by the storing step, by using a one way function **(Column 9 Lines 5-7, "Referring now to FIG. 15, after entry, block 1502 performs a hash operation on the IP address to create a pointer into the node list")**;

comparing the interface identification information converted by using the one way function which is received from another node, with the interface identification information as converted by the converting step **(Column 6-7 Lines 67-5, "That is, when the process-ping module queries the node, it determines the state of the node at the present time. This state is compared, in block 806, with the state of the node as it was known previously in the database. If that state has changed, block 806 transfers to block 808 to store the new state in the database")**; and

providing the prefix corresponding to the interface identification information compared by the comparing step to the another node, only when it is judged that the interface identification information coincides at the comparing step **(Column 6 Lines 48-52, "query the address translation table for the node that is executing the discovery system. This table will contain the addresses of other nodes on the network, and these addresses are then used to start the discovery process")**.

## Claim 8

Wu teaches the name resolution method of claim 7, wherein the updating step updates the node information stored by the storing step for which the interface

identification information coincides with that of the node information collected by the collecting step but the prefix does not coincide with that of the node information collected by the collecting step **(Column 8 Lines 25-32, "each IF table entry will have a corresponding IP table entry, and the IP entry is referenced by an index value contained in the IF entry. Block 1204 then determines whether a matching IP record exists. If a matching IP record does exist, block 1204 transfers to block 1206 which moves the physical address from the IP record to the node record in the node list. Block 1208 then updates any state information in the node record")**.

## Claim 9

*(Cancelled)*

## Claim 10

Wu teaches the name resolution method of claim 7, wherein the converting step uses a hash function as the one way function **(Column 9 Lines 5-7, "Referring now to FIG. 15, after entry, block 1502 performs a hash operation on the IP address to create a pointer into the node list")**.

## Claim 11

Wu teaches the name resolution method of claim 7, further comprising:

converting the prefix into a position identification information which is in one-to-one correspondence to the prefix; wherein the storing step stores the position

identification information obtained by the converting step, as the prefix **(Column 9 Lines 7-11, "Block 1504 then allocates memory for a node record, and block 1506 stores the data available for the node into the node record at the location pointed to by the hashed IP address")**.

## Claim 12

Wu teaches the name resolution method of claim 7, further comprising: generating an IPv6 address dynamically, according to the node information stored by the storing step **(Column 10 Lines 40-43, "FIG. 10 shows a flowchart of the process-IFIP module block 310 (FIG. 3). The IF and IP tables are available in a node to define the translation of physical addresses to IP addresses")**.

## Claim 13

Wu teaches a computer-readable medium having computer-executable instructions for performing a method for causing a computer to function as a name resolution device for managing a name of each node connected to a network and an address for identifying each node, the method comprising:

storing a node information containing a name of a node, a network identification information, a prefix indicating a position on the network, and an interface identification information of a node, for each node **(Column 5 Lines 58-60, "Block 604 then initializes the database used to permanently store the nodes)**;

collecting the node information of other nodes connected to the network, through the network **(Column 5 Lines 35-41, "Referring now to FIGS. 3 through 5, discovery module 302 is the main module of the system. Discovery calls self-seed block 304 to start the process of building a database about the network, and it calls process-node block 306 to process information about each node that it obtained from self-seed")**;

updating the stored node information, according to the collected node information of the other nodes, by updating the stored prefix using the interface identification information contained in the collected node information as a key **(Column 8 Lines 16-19, "After adding the node, or if the node already existed, control goes to block 1112 which updates the state information about the node")**;

converting the interface identification information corresponding to a prescribed node among the stored node information, by using a one way function **(Column 9 Lines 5-7, "Referring now to FIG. 15, after entry, block 1502 performs a hash operation on the IP address to create a pointer into the node list")**;

comparing the interface identification information converted by using the one way function which is received from another node, with the converted interface identification information **(Column 6-7 Lines 67-5, "That is, when the process-ping module queries the node, it determines the state of the node at the present time. This state is compared, in block 806, with the state of the node as it was known previously in the database. If that state has changed, block 806 transfers to block 808 to store the new state in the database")**; and

providing the prefix corresponding to the compared interface identification information to the another node, only when it is judged that the interface identification information coincides when comparing **(Column 6 Lines 48-52, "query the address translation table for the node that is executing the discovery system. This table will contain the addresses of other nodes on the network, and these addresses are then used to start the discovery process").**

**Claim 14**

Wu teaches the computer-readable medium of claim 13, wherein the updating includes updating the stored node information for which the interface identification information coincides with that of the collected node information but the prefix does not coincide with that of the collected node information **(Column 8 Lines 25-32, "each IF table entry will have a corresponding IP table entry, and the IP entry is referenced by an index value contained in the IF entry. Block 1204 then determines whether a matching IP record exists. If a matching IP record does exist, block 1204 transfers to block 1206 which moves the physical address from the IP record to the node record in the node list. Block 1208 then updates any state information in the node record")**.

**Claim 15**

*(Cancelled)*

**Claim 16**

Wu teaches the computer-readable medium of claim 13, wherein the converting uses a hash function as the one way function **(Column 9 Lines 5-7, "Referring now to FIG. 15, after entry, block 1502 performs a hash operation on the IP address to create a pointer into the node list")**.

**Claim 17**

Wu teaches the computer-readable medium of claim 13, further comprising:

converting the prefix into a position identification information which is in one-to-one correspondence to the prefix; wherein the storing includes storing the converted position identification information as the prefix **(Column 9 Lines 7-11, "Block 1504 then allocates memory for a node record, and block 1506 stores the data available for the node into the node record at the location pointed to by the hashed IP address")**.

**Claim 18**

Wu teaches the computer-readable medium of claim 13, further comprising:

generating an IPv6 address dynamically, according to the node information stored in the first computer program code **(Column 10 Lines 40-43, "FIG. 10 shows a flowchart of the process-IFIP module block 310 (FIG. 3). The IF and IP tables are available in a node to define the translation of physical addresses to IP addresses")**.

***Response to Arguments***

3. Applicant's arguments filed 12/19/2007 have been fully considered but they are not persuasive.

a. Applicant argues: *Independent claim 1, as amended, recites a combination including, for example, "a comparing unit configured to compare the interface identification information converted by using the one way function which is received from another mode, with interface identification information as converted by the function conversion unit." Wu fails to disclose at least these features of amended claim 1.*

The support for the one-way function found in the applicant's specification considered to be of relevance is in Paragraph [0056] **"At this point, the person A selects one of the network interface IDs that the person A has already learned about the network Nx, and inform its hash value to the network owner X (step S13). Here, the hash value is obtained by inputting the selected interface ID into a hash function"**, where the one-way function is a hash function. Here, a Network interface ID is taken, and from it a hash value (from a one-way hash function) is passed to the network owner.
Examiner asserts that this reads on the art cited for claim 1.

Particularly **(Column 9 Lines 5-7, "Referring now to FIG. 15, after entry, block 1502 performs a hash operation on the IP address to create a pointer into the node list")**. It is at the pointer created by the hash operation

where the identification information regarding the node is stored and located. The comparing part of the applicants claim furthermore reads on **(Column 6-7 Lines 67-5, "That is, when the process-ping module queries the node, it determines the state of the node at the present time. This state is compared, in block 806, with the state of the node as it was known previously in the database. If that state has changed, block 806 transfers to block 808 to store the new state in the database")**.

*b.* Applicant argues: *Wu fails to even mention "to store a node information containing a name of a node, a network identification information, a prefix indicating a position on the network, and an interface identification information of a node, for each node," as recited in amended claim 1 (emphasis added).*

Examiner asserts these limitations are contained in the cited art of reference, particularly Column 7 Lines 40-49, **"FIG. 10 shows a flowchart of the process-IFIP module block 310 (FIG. 3). The IF and IP tables are available in a node to define the translation of physical addresses to IP addresses. The information is available as two different tables, with an index contained in the IF table to cross-reference to the IP table within the node. By obtaining these two tables, the discovery system can determine what the other interfaces to which a node is connected, and therefore determine other networks to which the node is connected".** The name of the node can be synonymous with the IP address, which is considered to be

network identification information, along with the physical address and index indicating a position on the network, and the discovery system uses these to determine other interface information of a node, for each node.

***Conclusion***

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to FARHAD ALI whose telephone number is (571)270-1920. The examiner can normally be reached on Monday thru Friday, 7:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey C. Pwu can be reached on (571) 272-6798. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Farhad Ali/
Examiner, Art Unit 2146

/Jeffrey Pwu/
Supervisory Patent Examiner, Art Unit 2146